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Clinical Impact of Hepatitis C Infection in Military Active Duty women

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13. ABSTRACT *(Maximum 200 words)*

To determine the rate of hepatitis C infection among active duty women, 932 volunteers were enrolled in the study. Subjects were grouped under 3 categories: 463 healthy women, 388 women who visit outpatient clinics and 81 women who are hospitalized for a variety of diagnosis. Demographic data and serologic diagnosis of the infection were conducted. Serological assays were: a marker of liver disease: alanine aminotransferase (ALT) and specific markers of HCV infection: antibody to HCV by ELISA and recombinant immunoblot assay. Data are being analyzed at the present time and results are preliminary. 932 women in active duty, aged between 18 and 54 years participated. Among the 932, 420 were officers and 512 were enlisted. Overall, 25 (2.7%) of the volunteers had abnormal ALT levels, the distribution was 1.5% among healthy women, 2.83% among clinic patients and 8.64% among inpatients. Similarly approximately 25 (2.7%) serum specimens tested positive for antibody to hepatitis C. HCV antibody were tested under code and we are in the process of analyzing the results to establish statistical correlations. In summary, active duty women have evidence of abnormal ALT which increases when disease is present. HCV-infection (2.7%) is seen in excess than the rate observed among healthy American blood donors (0.5%).

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Marion H Ayers 30 Sept 95

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CLINICAL IMPACT OF HEPATITIS C INFECTION IN MILITARY ACTIVE DUTY WOMEN

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INTRODUCTION

Hepatitis C virus (HCV) infection is a common infection in the United States. About 0.3% of American blood donors (1) and 1.4% of apparently healthy Americans test positive for the virus (2). Statistically, these rates will correspond to a reservoir of approximately 3.5 million HCV infected persons in the United States (2). HCV leads to progressive liver disease, including cirrhosis in 20% of infected individuals. In addition approximately 20% of cirrhotics will develop hepatocellular carcinoma. There is little information about the prevalence or morbidity of the infection in women. Published clinical trials of interferon-alpha, the only approved therapeutic drug, show an 80% enrollment of men. This research effort attempts to minimize this gap in knowledge.

Healthy women and diseased women will be studied. Further more, enrollment of women who are ill, would be recruited in two categories, outpatient and inpatient. This distinction could serve as a measure of magnitude of disease status. All volunteers will be asked to answer a questionnaire and donate a blood sample. The questionnaire will collect basic demographic data such as age, race and MOS. In addition known risk factors for HCV will be asked such as past history of blood transfusions, intravenous drug abuse, sexual promiscuity, past history of liver disease, increased alcohol intake, etc. The blood sample will be used to test for alanine aminotransferase, a marker of liver disease and for hepatitis C serological markers. Once data are collected, statistical analysis would be carried out. Primary goal is to observe rates of hepatitis C infection in these three groups of active duty women.

BODY OF THE REPORT

The experimental methods used to accomplish this research were as follows:

Active duty women were recruited from 3 different categories: healthy women, women who sought medical advice as outpatients and women who were hospitalized for a variety of medical diagnosis. Women with previous known liver disease were excluded.

Written questionnaire obtained from each volunteer , where the following questions were asked:
Demographic data: age, race, military rank
Epidemiological risks for hepatitis C infection: Occupation, MOS, history of blood transfusion, history of intravenous drug abuse, sexual promiscuity.

Serological data:
A serum sample was obtained from each volunteer to test for alanine aminotransferase (ALT) as a non-specific marker of liver disease.
Sera were also tested for specific markers of hepatitis C virus infection:
antibody against the virus by ELISA and recombinant immunoblot assay.
Sera which was found to be positive by the antibody assay will be tested for HCV RNA HCV RNA is a test of viral replication. In addition, the HCV viral genotype will be assesed in each positive sample.

RESULTS

Recruitment is still ongoing and the results discussed below are preliminary in nature.
To date 932 volunteers have been recruited.
463 are healthy active duty women
388 are active duty women who visited an outpatient clinic
81 were active duty women hospitalized for a variety of diagnosis

The women were aged between 18 and 54 years, 420 were officers and 512 enlisted.
The racial distribution were as follows, 59% Caucasians, 29% African Americans, 7% Hispanics, 3% Asian and 2% belong to other ethnic groups.

Correlations between risk factors and HCV infection are in progress.

Alanine aminotransferase:
Of the 932 women 25 (2.7%) had abnormal serum ALT levels. The abnormality correlated with the health status of the individuals. 7/463 (1.5%), 11/388 (2.83%) and 7/81 (8.64%).

Hepatitis C tests:
Sera were tested under code and we only have the overall results, 25 volunteers were discovered to be infected with HCV, for an overall infection rate of 2.7%. Correlation with ALT, risk factors, demographic data and health status is in progress.

CONCLUSIONS

The conclusions are preliminary because the work has not been completed. However, it is clear that hepatitis C has increased rates of infection among active duty military women. Data from comparable American populations show that about 0.3% to 0.5% of blood donors are infected with the virus (1). A serological survey of apparently healthy American population (not blood donors) was recently shown to have a 1.4% overall rate of infection (2). This study shows an overall infectivity rate of 2.7%. It willbe of interest to observe if the ALT abnormality which was also observed in 2.7% of the studied subjects, correlates with the positive tests for HCV infection. The observation of abnormal serum ALT levels which correlated with status of health is quite interesting. It is possible that healthy women have less risk to acquire HCV infection than their counterparts who attend clinics or become hospitalized. Surgical procedures, blood transfusions, and other risk factors associated with medical care may play a role in transmission of HCV. A similar study to address military populations away from hospital centers is indicated.

No major studies have been published since the beginning of this effort which addressed the topic of this research. Perhaps the only relevant work is by Thomas et al, which showed an increased rate of infection among women whose sexual partners are infected with the virus (3). Women had a 3.7 times more likelihood to be infected with HCV.

In conclusion, military active duty women have an increased rate of hepatitis C infection as compared to American blood donors or counterpart civilian populations. Women also manifested a susceptibility to express liver disease, manifested by abnormal serum ALT levels. This occurs when they become ill and seek medical care as inpatients or outpatients. Data are being analyzed to examine possible risk factors which would explain such findings.

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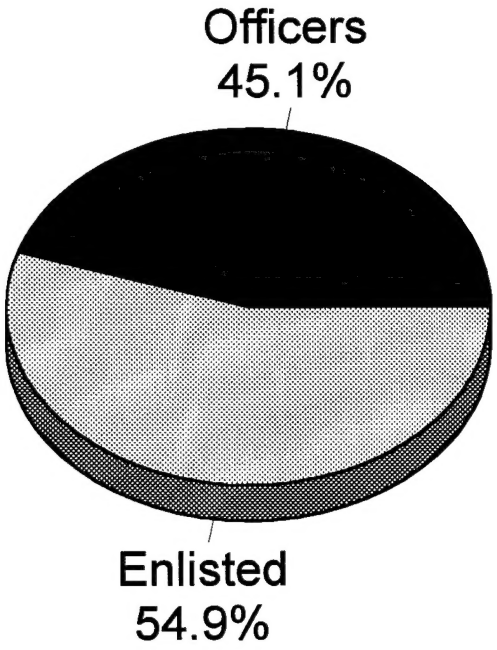
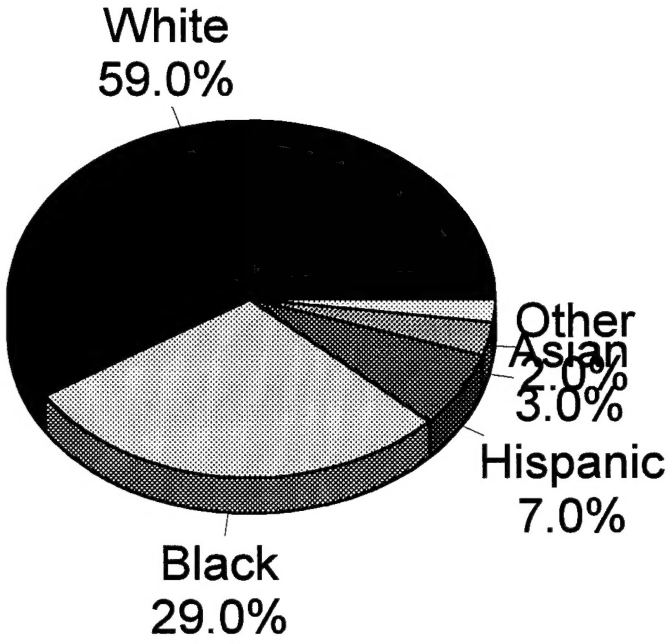
Clinical Impact of HCV Infection Among Military Women Demographic Data





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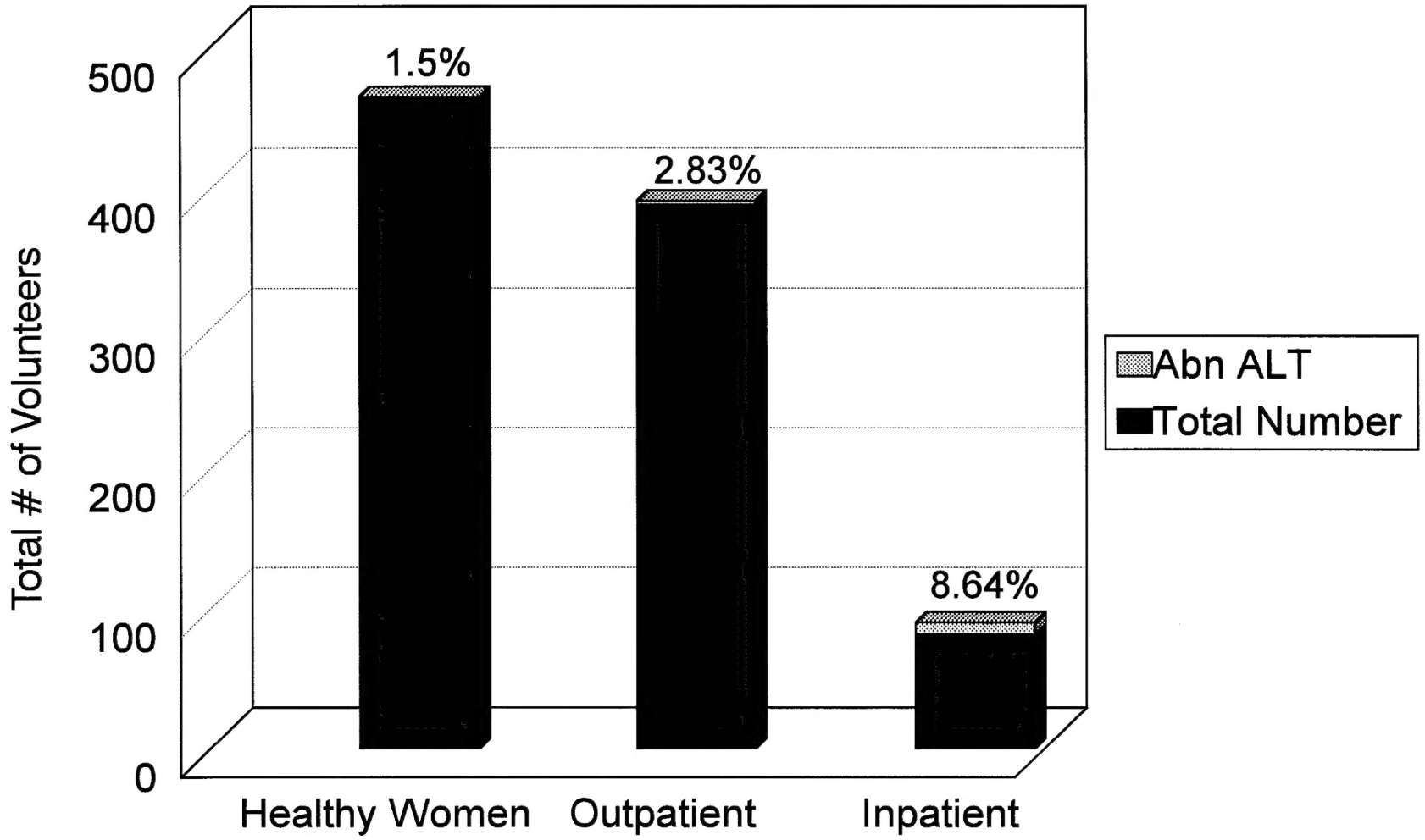
Clinical Impact of HCV Infection Among Military Women

Abnormal ALT per Group of Subjects (%)



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